

ABSTRACT

A semiconductor device is disclosed including a current generator circuit that generates a first current substantially proportional to an absolute temperature, the first current being determined by a size ratio of a MOS transistor, and by a resistor; and a starting-up circuit that causes the current generator circuit to generate the first current at a stable working point of the current generator circuit, wherein while the current generator circuit operates at the stable working point, a current that flows through the starting-up circuit is determined by a diffusion resistance and a MOS transistor. When the current generator circuit starts operating at a stable operating point, resistance of the diffusion resistor and a MOS transistor connected in series determines a current that flows through a starting-up circuit. According to the above arrangements, the power consumption of the circuit can be reduced by increasing the resistance of the diffused resistor.